

Remarks

The office action of May 21, 2003 has been reviewed and the Examiner's comments carefully considered. The Examiner's comments will be addressed in turn.

The acknowledgment of the claim for priority is appreciated.

The reconsideration of the restriction requirement is appreciated. The applicant has cancelled non-elected claims 10-17 in response to the Examiner's indication that the requirement is made final. Claim 18, a product by process claim, has also been canceled in view of the withdrawal and cancellation of claim 15. Applicant reserves the right to file a divisional application(s) directed to the subject matter of these non-elected claims.

Claims 1-9 and 20 were rejected under 35 USC 112 second paragraph for certain cited editorial errors. The antecedent basis for the terms "circumference" and "same direction" have been added to the claims. With regard to claims 5 and 20, a further narrowing of a broad range is common and does not introduce uncertainty into the claims. The limitations are not in the alternative and the dependent claims further limit the independent claims from which they depend. No changes to these two claims, for this reason, is needed. Reconsideration of this rejection in view of the amendments and above comments is respectfully requested.

Claims 1-9 and 19-20 have been rejected as being clearly anticipated by the teachings of U.S. Patent 5,727,705 to Kelly. The Examiner asserts that the Kelly patent teaches a closure with the claimed projection, or rib, with an angled portion as shown in Figure 2.

The Kelly patent is distinctly different from the present claimed invention. As discussed in the specification of the present application the "interference elements of tamper evident bands of the prior art can take several different shapes. An upward extending (i.e., extending toward the closed end of the container closure) integral continuous barb can be considered as the most effective shape for an interference element, but this shape is relatively difficult to efficiently manufacture. One solution addressing the manufacturing problem is to form the barb as a downwardly extending member as molded, which is folded up following the molding process. This solution is

found in U.S. Pat. Nos. 4,848,614; 5,090,788; 4,807,771; 4,546,892; 4,595,110; 5,725,115; 5,775,527; 5,913,437; 6,116,442; and 6,119,883." This solution is also what is represented in the Kelly patent as noted with the hinges 19. Additionally the Kelly patent does not suggest a common continuous rib which exhibits hoop like characteristics as in the present invention, instead the Kelly patent provides that the interfering element is formed of a plurality of elements 5 connected to adjacent elements through flexible hinges 17 (see column 4 lines 27-20 of the Kelly Patent).

The objects of the present invention are achieved with an injection molded container closure in the form of a threaded flat cap having a top on one end of an annular side wall forming a closed annular structure. The cap further includes a tamper-evident portion on a lower portion of the side wall with the tamper-evident portion including a plurality of frangible leaders extending across a score line to a lower band. The lower band includes a continuous internal rib below the leaders. The present invention also provides an injection mold for forming a mold part in the form of a closed annular structure having a continuous internal rib. The mold includes a pair of mold halves defining a mold cavity with one of the mold halves including a core forming the interior of the closed annular structure. The core is separated into a movable core portion and a remaining core portion at a separating line defined at the internal continuous rib. The moveable core is moveable away from the remaining core during ejection of the mold part following the molding process wherein a space is formed for the rib to move, or flex, into during the ejection process by the movement of the moveable core.

The claims have been amended to clarify these distinctions. Independent claim 24 defines "a tamper-evident portion on a lower portion of the side wall, the tamper-evident portion including a plurality of leaders extending across a score line to a lower band, the lower band including a substantially continuous internal rib below the leaders, wherein the substantially continuous internal rib extends inwardly and has a length-to-width ratio of at least one and one-half, wherein the rib maintains hoop-like characteristics and extends inwardly from the lower band away from the top as molded and in use on a container." The Kelly patent teaches away from a continuous internal rib that maintains hoop like characteristics by having retaining elements 5 connected by hinges 17. Further the elements 5 are positioned to extend toward the top when in the

operative position (see figure 5). The structure of the Kelly patent is what the present invention is improving upon and the claims have been drafted to recite these distinctions.

Claim 19 also defines "a substantially continuous internal rib extending inwardly directly from the side structure and having a length-to-width ratio of at least one and one-half, wherein the rib maintains hoop-like characteristics and extends inwardly from the side structure away from the top as molded and in use on a container." Claim 19 is allowable for substantially the same reasons as claim 24.

Claim 21 defines "wherein the rib has a substantially constant cross section around a circumference of the side structure." The Kelly patent teaches a varied cross section for elements 5 as shown in figure 5. Claim 26 includes similar limitations.

Claims 22 and 27 further define the rigid structure, following molding, of the rib. The elements 5 of the Kelly patent, conversely, are connected to the side wall with a hinge 19 to avoid rigidity.

The continuous rib according to the present invention includes an improvement to assist in the installation on the cap onto the container. Specifically, the continuous rib includes an angled portion for a portion of a circumference of the cap, preferably about ninety degrees of the circumference. The angled portion forms a one-way lead-in thread for placing the cap onto the container with the lead-in thread provided by the angled portion is angled in the same direction with the same pitch as the thread of the cap. This is described in the summary of the invention and is set forth in independent claim 1.

Claim 1 defines "...a substantially continuous internal projection below the leaders, wherein the projection includes an angled portion for a portion of a circumference of the tamper-evident portion forming a one-way lead-in thread for the projection, wherein the one-way lead-in thread formed by the angled portion has a pitch extending in a same direction as the internal thread of the annular side wall, whereby the one-way lead-in thread formed by the angled portion allows the projection of the tamper-evident portion to be threaded past a retaining ridge of a container." The Kelly patent has no structure on the elements 5 forming a lead-in thread for the interfering element. Claim 6 defines similar structure.

Claims 2-3 and 7-8 further define the thread structure on the projection of the tamper evident band which is simply not found in the Kelly patent. Claims 5 and 9 define the uniform cross section discussed above.

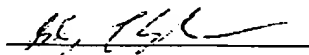
Claims 1-9 and 19-29 remain in the application and favorable action of the claims, as amended, is respectfully considered.

Respectfully Submitted;

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